

Amendments to Claims:

Please amend the claims as follows:

1.-44. (Cancelled)

45. (Currently Amended) A powder metal disk for a rotor assembly in a circumferential type interior permanent magnet machine, the disk comprising alternating magnetically non-conducting barrier segments and embedded circumferentially extending permanent magnets, the permanent magnets alternating in polarity, and radially outer magnetically conducting segments embedding the permanent magnets, each having an ~~optional~~ intermediate magnetically non-conducting bridge segment extending radially from the permanent magnet to an outer circumferential surface of the disk, wherein the magnetically non-conducting barrier segments and ~~optional~~ bridge segments comprise pressed and sintered non-ferromagnetic powder metal and the outer magnetically conducting segments comprise pressed and sintered soft ferromagnetic powder metal.

46. (Original) The disk of claim 45 further comprising an inner annular magnetically conducting segment comprising pressed and sintered soft ferromagnetic powder metal adjacent a radially inner surface of each permanent magnet.

47. (Original) The disk of claim 45, wherein the soft ferromagnetic powder metal is Ni, Fe, Co or an alloy thereof.

48. (Original) The disk of claim 45, wherein the soft ferromagnetic powder metal is a high purity iron powder with a minor addition of phosphorus.

49. (Original) The disk of claim 45, wherein the non-ferromagnetic powder metal is an austenitic stainless steel.

50. (Original) The disk of claim 45, wherein the non-ferromagnetic powder metal is an AISI 8000 series steel.

51. (Original) The disk of claim 45, wherein the permanent magnets comprise pressed and sintered hard ferromagnetic powder metal.

52. (Original) The disk of claim 45, wherein the permanent magnets are prefabricated inserts affixed to the magnetically non-conducting barrier segments.

53. (Currently Amended) A powder metal disk for a rotor assembly in a circumferential type interior permanent magnet machine, the disk comprising:

an inner annular magnetically conducting segment; and

an outer annular permanent magnet segment comprising alternating magnetically non-conducting barrier segments and embedded circumferentially extending permanent

magnets, the permanent magnets alternating in polarity, and radially outer magnetically conducting segments embedding the permanent magnets, each having an optional intermediate magnetically non-conducting bridge segment extending radially from the permanent magnet to an outer circumferential surface of the disk,

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wherein the magnetically non-conducting barrier segments and optional bridge segments comprise pressed and sintered non-ferromagnetic powder metal and the inner annular and outer magnetically conducting segments comprise pressed and sintered soft ferromagnetic powder metal.

54. (Original) The disk of claim 53, wherein the soft ferromagnetic powder metal is Ni, Fe, Co or an alloy thereof.

55. (Original) The disk of claim 53, wherein the soft ferromagnetic powder metal is a high purity iron powder with a minor addition of phosphorus.

56. (Original) The disk of claim 53, wherein the non-ferromagnetic powder metal is an austenitic stainless steel.

57. (Original) The disk of claim 53, wherein the non-ferromagnetic powder metal is an AISI 8000 series steel.

58. (Original) The disk of claim 53, wherein the permanent magnets comprise pressed and sintered hard ferromagnetic powder metal.

59. (Original) The disk of claim 53, wherein the permanent magnets are prefabricated inserts affixed to the inner annular magnetically conducting segment.

60. (Original) The disk of claim 53, wherein the inner annular magnetically conducting segment further comprises a substantially star-shaped magnetically non-conducting insert of pressed and sintered non-ferromagnetic powder metal, with each tip portion of the star-shaped insert extending toward a respective permanent magnet in the outer annular permanent magnet segment.

61. (Original) The disk of claim 53 further comprising an inner annular magnetically non-conducting segment of pressed and sintered non-ferromagnetic powder metal radially inward of the inner annular magnetically conducting segment.

62. (Original) A powder metal rotor assembly for a circumferential type interior permanent magnet machine, comprising:
a shaft; and
a plurality of composite powder metal disks axially stacked along and bonded to the shaft, each disk comprising:
an inner annular magnetically conducting segment; and
an outer annular permanent magnet segment comprising alternating magnetically non-conducting barrier segments and embedded circumferentially extending permanent magnets, the permanent magnets alternating in polarity, and radially outer magnetically conducting segments embedding the permanent magnets, each having an intermediate magnetically non-conducting bridge segment extending radially from the permanent magnet to an outer circumferential surface of the disk,

wherein the magnetically non-conducting barrier segments and bridge segments comprise pressed and sintered non-ferromagnetic powder metal and the inner annular and outer magnetically conducting segments comprise pressed and sintered soft ferromagnetic powder metal.

63. (Original) The assembly of claim 62, wherein the soft ferromagnetic powder metal is Ni, Fe,

Co or an alloy thereof.

64. (Original) The assembly of claim 62, wherein the soft ferromagnetic powder metal is a high

purity iron powder with a minor addition of phosphorus.

65. (Original) The assembly of claim 62, wherein the non-ferromagnetic powder metal is an

austenitic stainless steel.

66. (Original) The assembly of claim 62, wherein the non-ferromagnetic powder metal is an AISI

8000 series steel.

67. (Original) The assembly of claim 62, wherein the permanent magnets comprise pressed and

sintered hard ferromagnetic powder metal.

68. (Original) The assembly of claim 62, wherein the permanent magnets are prefabricated

inserts affixed to the inner annular magnetically conducting segment. The assembly of claim

62, wherein the inner annular magnetically conducting segment further comprises a

substantially star-shaped magnetically non-conducting insert of pressed and sintered non-ferromagnetic powder metal, with each tip portion of the star-shaped insert extending toward a respective permanent magnet in the outer annular permanent magnet segment.

69. (Original) The assembly of claim 62 further comprising an inner annular magnetically non-conducting insert of pressed and sintered non-ferromagnetic powder metal radially inward of the inner annular magnetically conducting segment.

70. (Original) The assembly of claim 62 further comprising an inner annular magnetically non-conducting insert of pressed and sintered non-ferromagnetic powder metal radially inward of the inner annular magnetically conducting segment.

71. (New) A powder metal disk for a rotor assembly in a circumferential type interior permanent magnet machine, the disk comprising:

an inner annular magnetically conducting segment comprising a substantially star-shaped magnetically non-conducting insert of pressed and sintered non-ferromagnetic powder metal, with each tip portion of the star-shaped insert extending toward a respective permanent magnet in the outer annular permanent magnet segment; and
an outer annular permanent magnet segment comprising alternating magnetically non-conducting barrier segments and embedded circumferentially extending permanent magnets, the permanent magnets alternating in polarity, and radially outer magnetically conducting segments embedding the permanent magnets, each having an intermediate

magnetically non-conducting bridge segment extending radially from the permanent magnet to an outer circumferential surface of the disk,
wherein the magnetically non-conducting barrier segments and bridge segments comprise pressed and sintered non-ferromagnetic powder metal and the inner annular and outer magnetically conducting segments comprise pressed and sintered soft ferromagnetic powder metal.

72. (New) A powder metal disk for a rotor assembly in a circumferential type interior permanent magnet machine, the disk comprising:

an inner annular magnetically conducting segment; and
an inner annular magnetically non-conducting segment of pressed and sintered non-ferromagnetic powder metal radially inward of the inner annular magnetically conducting segment
an outer annular permanent magnet segment comprising alternating magnetically non-conducting barrier segments and embedded circumferentially extending permanent magnets, the permanent magnets alternating in polarity, and radially outer magnetically conducting segments embedding the permanent magnets, each having an intermediate magnetically non-conducting bridge segment extending radially from the permanent magnet to an outer circumferential surface of the disk,

wherein the magnetically non-conducting barrier segments and bridge segments comprise pressed and sintered non-ferromagnetic powder metal and the inner annular and outer magnetically conducting segments comprise pressed and sintered soft ferromagnetic powder metal.